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Medical Practice Question

EDITOR'S NOTE: *From time to time medical practice questions from organizations with a legitimate interest in the information are referred to the Scientific Board by the Quality Care Review Commission of the California Medical Association. The opinions offered are based on training, experience and literature reviewed by specialists. These opinions are, however, informational only and should not be interpreted as directives, instructions or policy statements.*

Stereotactic Heavy-Ion Irradiation of Arteriovenous Malformations

QUESTION:

Is it accepted medical practice to treat arteriovenous malformations by the radiosurgical method of stereotactic heavy-ion irradiation?

OPINION:

In the opinion of the Scientific Advisory Panels on Neurosurgery and Radiology, stereotactic heavy-ion bragg peak radiosurgery is considered a promising but still investigational treatment for deep, inoperable arteriovenous malformations (AVMs) of the brain. The procedure has been advocated for those select patients in whom the AVM cannot be safely surgically excised, cannot be treated with any form of embolization or in which, following embolization carried out at one or multiple stages, there remains some residual AVM that cannot be controlled. To date, only two centers in the United States have the specially trained personnel and sophisticated equipment necessary to apply this treatment method.

Though recent reports indicate that this technique can be applied safely, effectively and at low risk to patients, the total number of patients treated thus far has been small. Follow-up in two of the three studies reported has been for a relatively short period of time, two years or less. In one series, only 20% of patients had complete obliteration of the AVM; in the other, although most patients had a decrease in the size of the AVM after a period of months, none had complete obliteration.

Long-term study findings are not yet available to address questions such as recanalization, delayed hemorrhage, the delayed response in the reduction and obliteration of the AVM and the associated risks of large dose radiation. Therefore, as neither the technique nor its outcome has been conclusively defined and because continued basic research and clinical investigation is advocated by those working in this field, stereotactic heavy-ion bragg peak radiosurgery for arteriovenous malformation should be classified as an investigational procedure.